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Transforming Teaching Through Curriculum-Based
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Curriculum-Based Professional Learning

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A Shift in Practice

Where are you now?

- I am wondering how curriculum-based professional learning differs from other types of professional learning.
- I am curious about the shifts required to move toward curriculum-based professional learning.
- I am interested in learning more about the changing emphases involved in curriculum-based professional learning.
- I am committed to professional learning that helps improve teachers' practices and leads to better student outcomes.

From "Learning About" to "Figuring Out"

"I picked a banana, and I said a banana consists of carbs and proteins," the seventh grader begins, gearing up to answer two big questions about her chosen food—where does it come from, and where does it go next? She details the elements that make up the fruit: carbon, oxygen, hydrogen, nitrogen, and sulfur. Those include the ingredients for water, or H_2O , she tells the class—with an unwelcome addition.

"I remember when I went to Florida, and they had really stinky water, and they told me that their stinky water was because it contained sulfur." Ewwww. But her classmates notice something else about the ingredients list, too.

“You could have one substance and then take it apart and make other substances out of the same elements,” another student says.

Then, the teacher chimes in. “So, we have this idea that we’re building things, we’re making substances—is it like LEGO bricks, and we’re putting them together in different combinations?” she asks.

Bingo. That’s one way the OpenSciEd curriculum develops students’ understanding of scientific phenomena using a story line approach. The curriculum follows a logical sequence of learning and is driven by student inquiry. That includes the current putting-the-pieces-together exercise, which prompts students to determine what they know based on the evidence they’ve gathered so far and what they still need to find out to answer a scientific question.

In this case, however, the “class” is actually part of OpenSciEd’s professional learning for teachers, and the “seventh graders” are actually middle school science teachers. Taking a student’s perspective is a critical part of OpenSciEd’s approach to curriculum-based professional learning. Both the curriculum materials for students and the professional learning experiences for teachers focus on science instruction that shifts from “learning about” to “figuring out” through phenomena-driven instruction.¹ Instead of students memorizing disconnected facts, they investigate phenomena from the natural and designed worlds as they build science ideas over time as a classroom community.

Each unit in the curriculum starts with a familiar object or experience, like an insulated thermos or a booming car stereo, and prompts students to explore the scientific phenomena behind it. After this anchoring experience, students discuss their questions, and a teacher helps them focus in on the science content and learning goals. (In the case of the banana discussion, the academic focus is metabolism involving food molecules.)

The curriculum is deliberately sequenced, based on an inquiry-driven approach, and designed for the Next Generation Science Standards. Whereas traditional science lessons often start with a teacher introducing vocabulary and information about a science topic, OpenSciEd’s instructional approach prompts students to notice the world around them, ask questions, and seek explanations to understand the scientific phenomena at play. The curriculum is concrete and universally relevant, and it focuses on what students know and can figure out rather than what teachers know and can tell them. Teachers orchestrate discussion instead

of relaying information, and students often ask questions their teachers may not be prepared to answer.

Reflect on this:

1. What are the changes needed to anchor professional learning in the use of high-quality curriculum materials?
2. What are the structures and designs that shift when professional learning is focused on curriculum implementation?
3. What are the benefits of making these shifts toward curriculum-based professional learning?

From Curriculum Developer to Learning Facilitator

Teaching involves a variety of challenges. Learning to prepare all students to achieve college- and career-ready standards can be pivotal in teacher development. Most teacher preparation programs focus on content and pedagogy divorced from the curriculum their future employers may expect them to implement. What if teachers were given the opportunity to learn how to teach by using high-quality instructional materials that contain exemplar lessons and instructional sequences? Many teachers today are expected to design their own curriculum using state standards with district scope and sequence documents and pacing guides. And when standards themselves change, the default for most educators is to realign current materials to new standards and expectations. As a result, teaching never changes, and students do not benefit from the intention of the adoption of new standards. Bottom line, how can teachers design learning experiences to address current or new standards using approaches they haven't experienced as learners themselves?

Instead of thinking of standards as a starting point for developing their own lessons, imagine if teachers work like learning engineers to understand the underlying structures and internal logic in high-quality curriculum materials. Rather than professional learning that focuses on content or teaching techniques in isolation, curriculum-based professional learning uses lessons directly from the curriculum to deepen teachers' content and pedagogical content knowledge. Teachers enhance their subject-matter expertise while practicing how to facilitate and teach complex content to their students (see Table 2.1).

When they are provided with materials, teachers sometimes perceive these materials as a "scripted curriculum" that does not honor their

professional expertise and judgment. Developing fluency in a curriculum does not mean following it to the letter; instead, teachers develop a deeper understanding of how standards are translated into units and how units are broken into lessons. Teachers are still expected then to adjust lessons to connect to students’ lived experiences, funds of knowledge, and individual needs and interests. High-quality instructional materials help teachers anticipate likely challenges, offer context and suggestions, and prompt teachers to rehearse instruction with a wide range of student questions, discoveries, and needs in mind.

TABLE 2.1 From Curriculum Developer to Learning Facilitator

LESS EMPHASIS ON	MORE EMPHASIS ON
Teacher as curriculum developer	Teacher as learning facilitator using high-quality instructional materials to support student learning
Old curriculum realigned to new standards	Newly developed educative instructional materials that help teachers develop content knowledge and pedagogical content knowledge
Scripted curriculum	Educative curriculum that guides effective implementation and provides annotated support for meeting needs of individual learners
Professional learning that focuses on deepening teachers’ content knowledge and asking them to apply it to their teaching	Professional learning grounded in using high-quality instructional materials that simultaneously deepen teacher knowledge of content and how to teach that content to students

From Disconnected Learning to Deep Dives Into High-Quality Curriculum

Curriculum-based professional learning provides teachers with opportunities to experience new instructional materials as learners and then go deeper into understanding the curriculum’s design and instructional approach. Instead of a “show and tell” session about a curriculum, let teachers experience it. Teachers are active learners, like their students, who construct their knowledge and beliefs based on direct experience. Teachers need to experience curriculum and instruction and see how an approach benefits students rather than just hearing about it (see Table 2.2).

TABLE 2.2 From Disconnected Learning to Deep Dives Into High-Quality Curriculum

LESS EMPHASIS ON	MORE EMPHASIS ON
Curriculum orientation sessions that present information about new instructional materials to teachers	Professional learning sessions that provide opportunities to experience new instructional materials as “student” learners
Professional development activities disconnected from the curriculum	Curriculum-anchored professional learning with intentional opportunities to reflect on beliefs about learning and teaching
Training sessions that emphasize solely building teacher content knowledge	Facilitated conversations that address the connection between thinking and learning

When professional learning shifts to experiencing the curriculum, teachers have opportunities to deepen their content knowledge by learning specific approaches to teaching their content that put students at the center of learning. Teachers also learn to translate new knowledge into practice by engaging in planning with high-quality instructional materials often with other teachers. Curriculum-based professional learning includes practicing teaching from the curriculum to help teachers try out new teaching strategies embedded in the materials and examine the results of how students respond. As teachers reflect on their beliefs about teaching and learning using well-designed curriculum materials, they examine experiences in the classroom, assess the impact on students from changes in instructional practice, and consider how the curriculum is helping support student thinking and learning.

Less Adapting and More Scaffolding

Education leaders, curriculum designers, coaches, and teachers promote equity by ensuring it informs decision making at all levels. Rigorous standards and expectations for what students can achieve must be at the forefront of curriculum selection processes, curriculum-based learning, and efforts to change classroom instruction. Underprepared students need support, but they also need appropriately challenging, well-designed opportunities to struggle and grow. To meet the needs of all students, teachers can use high-quality instructional materials to help shift to more equitable instruction.

Every student should have access to high-quality, demanding curriculum and opportunities to think critically. Every teacher should know how to

scaffold learning experiences so that students are supported to engage with complex materials and activities. Equally important is knowing when to remove such scaffolds for students (see Table 2.3). Promoting equity means avoiding strategies that leave underprepared students out of standards-aligned learning based on their current skill level. If a discussion centers on a highly complex text, for example, a teacher can read the text to less-prepared students and engage their thinking at a complex level, even if the prerequisite skills are not yet fully established. When teachers develop deep expertise in both content and curriculum, they can apply relevant tools and supports to ensure all students meet challenging academic expectations.

LESS EMPHASIS ON	MORE EMPHASIS ON
Lowering expectations and compromising the rigor of instructional materials for selected students	Raising expectations for all students by scaffolding instructional materials appropriately to ensure all students engage with rigorous content
Adapting instructional materials based on perception of students' abilities	Adapting instructional materials to meet the needs of students while maintaining the integrity of the materials

